



US006938538B1

(12) **United States Patent**  
**Mainville**

(10) **Patent No.: US 6,938,538 B1**  
(45) **Date of Patent: Sep. 6, 2005**

(54) **BORE SEAL TELESCOPIC HOIST**

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(\*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 787 days.

(21) Appl. No.: **09/598,758**

(22) Filed: **Jun. 22, 2000**

(51) **Int. Cl.<sup>7</sup> ..... F16J 9/00**

(52) **U.S. Cl. .... 92/251; 92/253; 92/51**

(58) **Field of Search ..... 92/51, 52, 53, 92/169.1, 251, 253**

(56) **References Cited**

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(57) **ABSTRACT**

A bore seal telescopic hoist is formed of a series of telescopically arranged tubular sections each having a circumferential reservoir. A circumferential wiper is lodged in the reservoir and is used to collect debris or dirt which may be present on the inner wall of an adjacent tubular section.

**4 Claims, 2 Drawing Sheets**

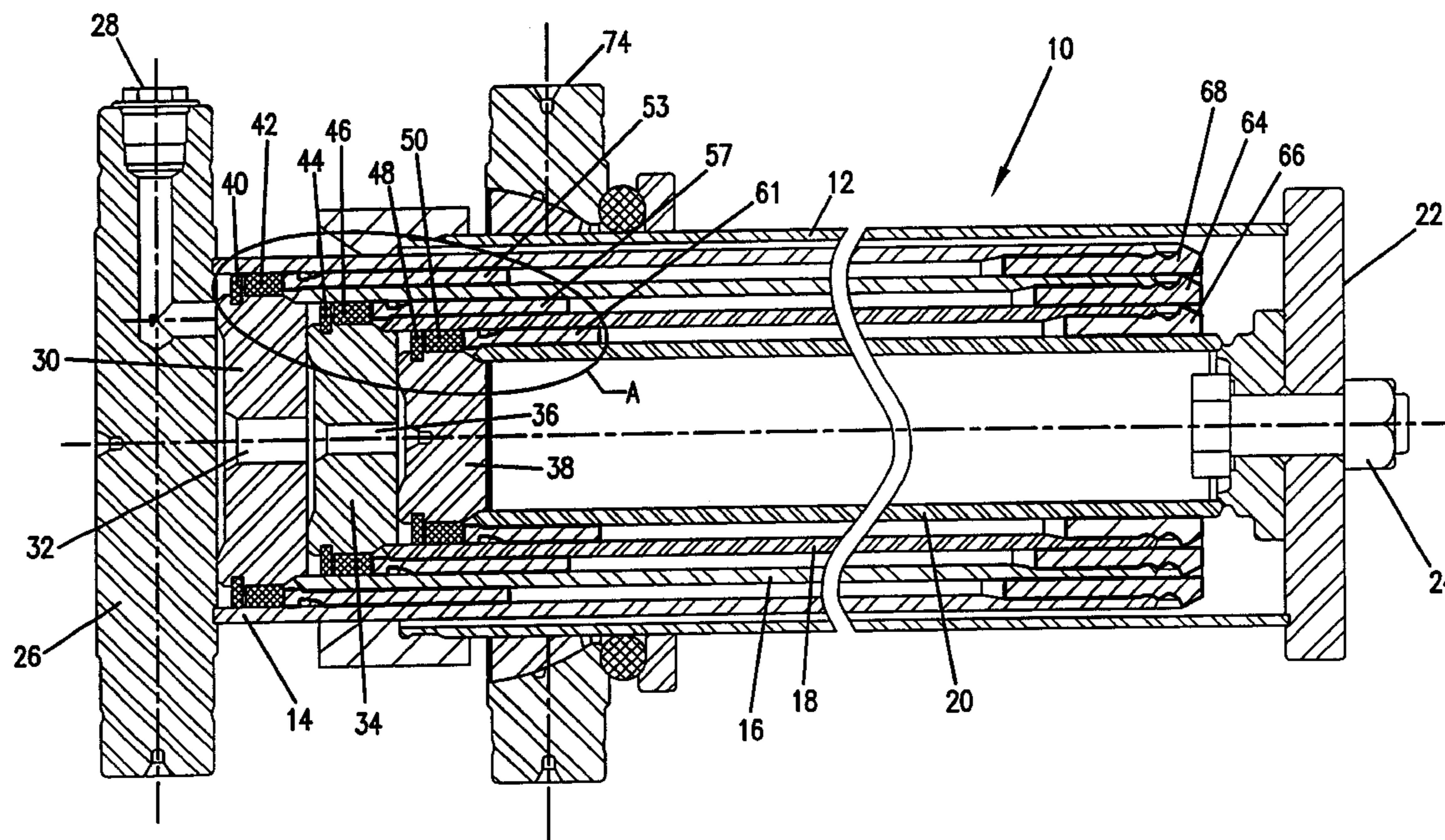
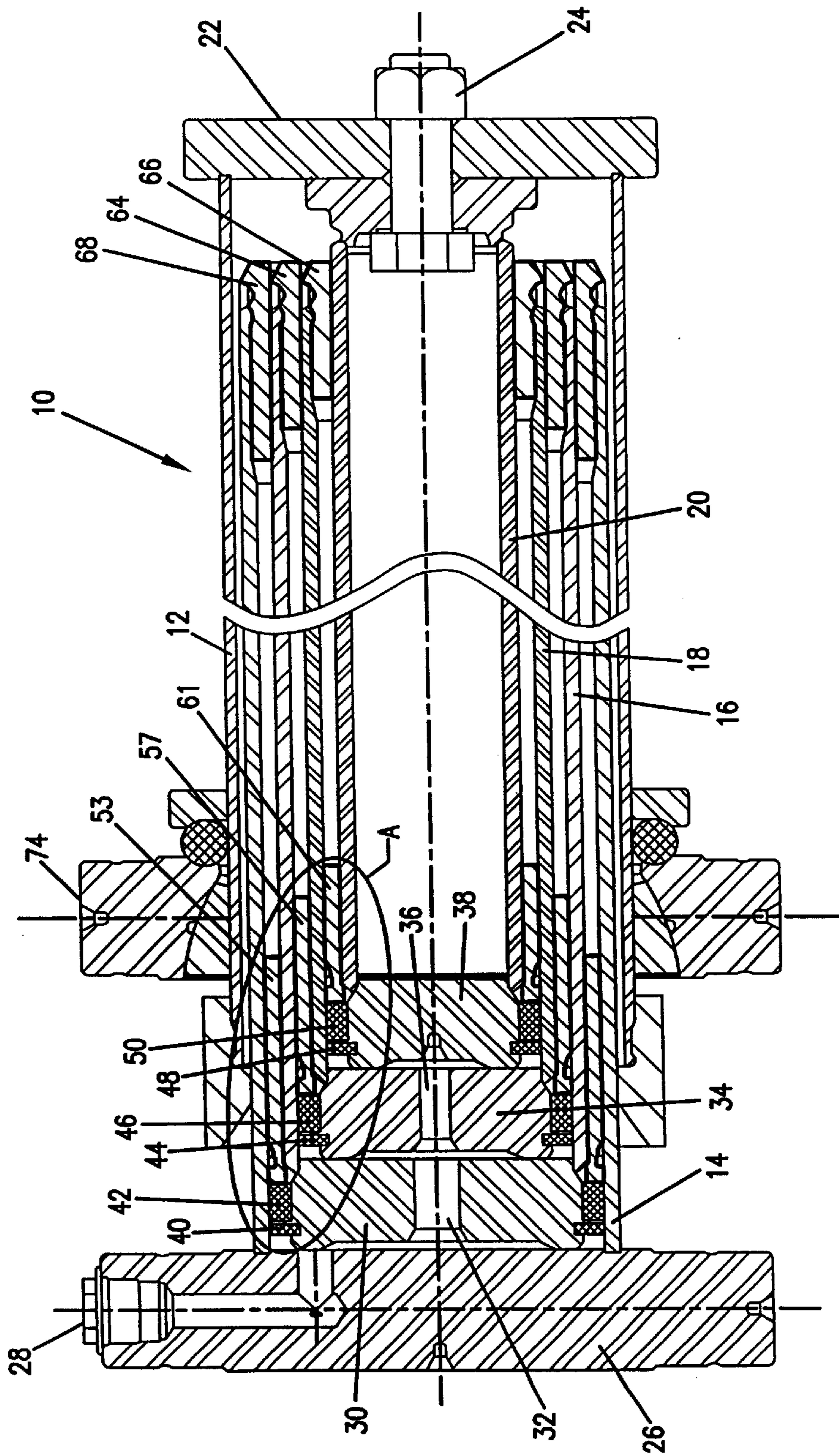


FIG. 1



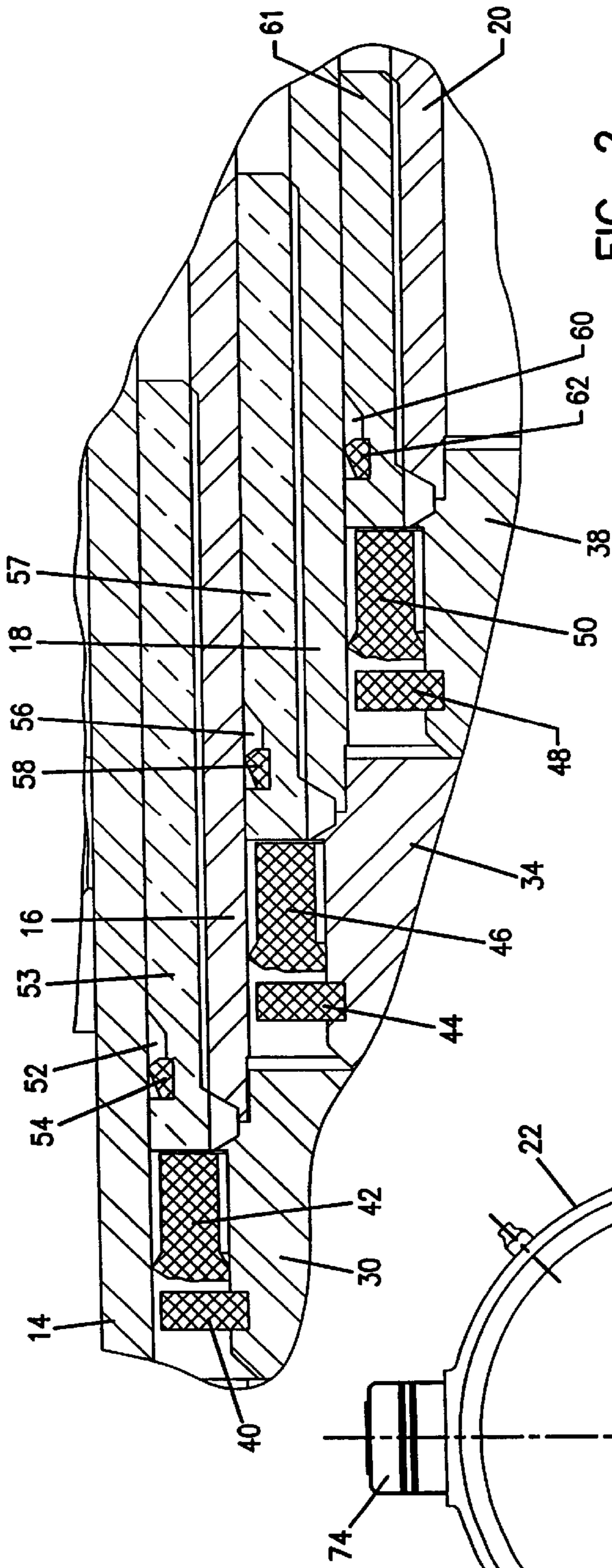


FIG. 2

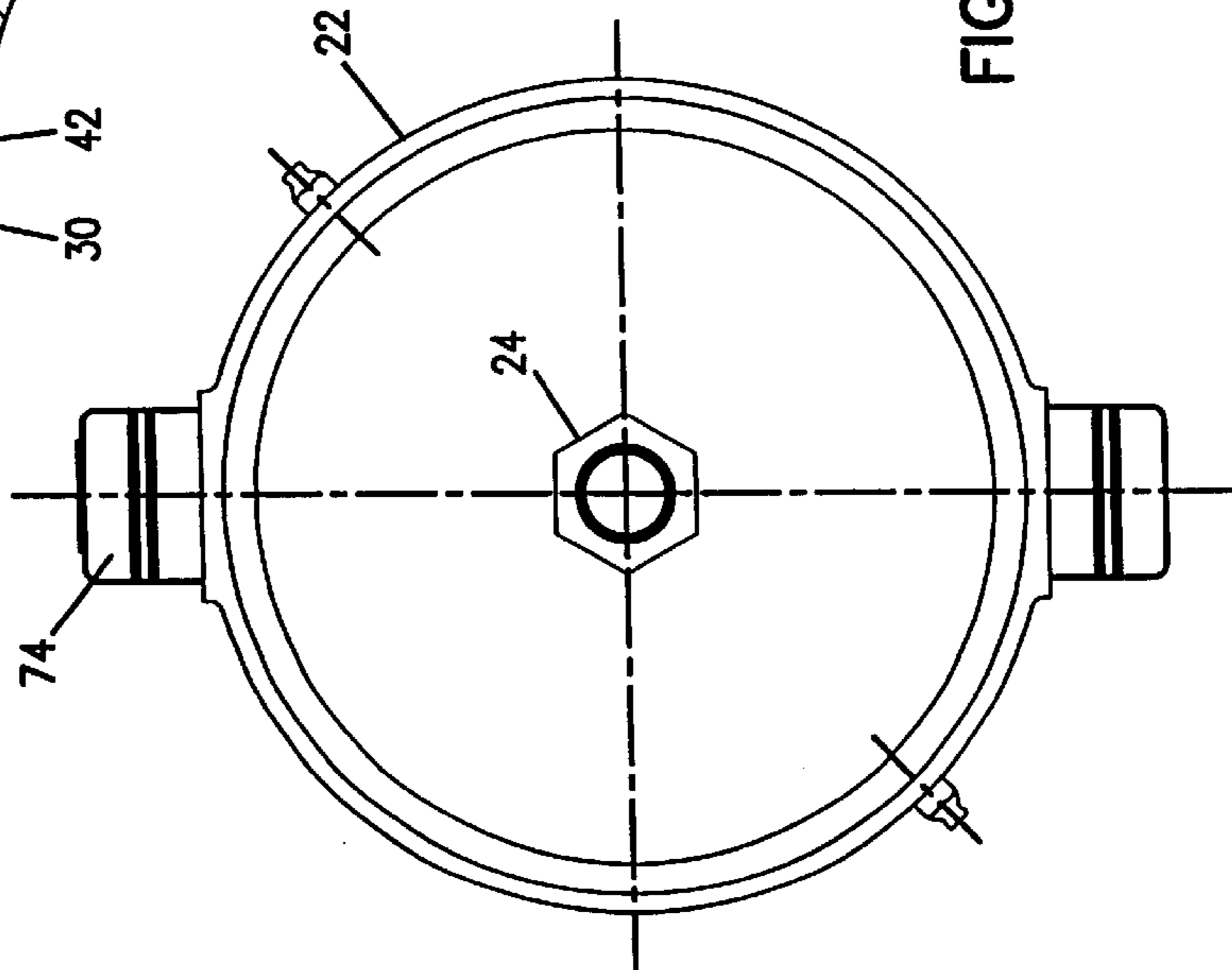


FIG. 3

**BORE SEAL TELESCOPIC HOIST****FIELD OF THE INVENTION**

The present invention pertains to a bore seal telescopic hoist which is formed of a series of telescopically arranged tubular sections.

**BACKGROUND OF THE INVENTION**

Telescopic hoists of the bore seal type have sections which are in contact with ambient air. There results a collection of debris or dirt on the inside wall of these sections which may affect a proper operation of the hoists.

**OBJECT AND STATEMENT OF THE INVENTION**

It is an object of the present invention to overcome the problems of debris or dirt on the inner wall of tubular sections of a bore seal telescopic hoist by providing a wiper that collects the debris to lodge them in a reservoir associated with the wiper.

The present invention therefore relates to a bore seal telescopic hoist which comprises a series of telescopically arranged tubular sections, each section having a first end and an opposite second end; each said first end having an inlet port; sealing means at each first end; reservoir means at each said first end located circumferentially adjacent the sealing means; and scraper means in the reservoir means for contacting an adjacent inner wall of a tubular section and depositing in said reservoir means debris scraped and collected thereon.

Other objects and further scope of applicability of the present invention will become apparent from the detailed description given hereinafter. It should be understood, however, that this detailed description, while indicating preferred embodiments of the invention, is given by way of illustration only, since various changes and modifications within the spirit and scope of the invention will become apparent to those skilled in the art.

**BRIEF DESCRIPTION OF THE DRAWINGS**

FIG. 1 is a cross-sectional view showing the hoist made in accordance with the present invention;

FIG. 2 is an enlarged section of part A of FIG. 1; and

FIG. 3 is an end view as seen from the right of FIG. 1.

**DESCRIPTION OF PREFERRED EMBODIMENTS**

Referring to the drawings, there is shown a bore seal telescopic hoist, generally denoted **10**, which comprises a tubular housing **12** and a series of tubular sections **14**, **16**, **18** and **20**. The tubular housing **12** is closed at one end by means of a plate **22** which is also secured to the innermost tubular section **20** by means of a bolt **23** and a nut **24**. The opposite end of the housing is opened to receive the telescopically arranged tubular sections **14**, **16**, **18** and **20** therein.

The outermost tubular section **14** comprises a head **26** having a hydraulic inlet port **28** allowing fluid to be introduced in an area enclosed between the head **26** and the piston head **30** of the second tubular housing **16**. The latter has an opening **32** allowing the fluid to be received in a second area enclosed between the head **30** and a piston head **34** of the third tubular section **18**. The latter also includes an

opening **36** allowing the fluid to exert pressure on the piston head **38** of the fourth tubular section **20**.

Referring more particularly to FIG. 2, the piston head **30** has a circumferential keeper ring **40** and a U-shaped cup bore seal **42**; the piston head **34** has a circumferential keeper ring **44** and a U-shaped cup bore seal **46**; the piston head **38** has a circumferential keeper ring **48** and a U-shaped cup bore seal **50**. The keeper rings are lodged in appropriate circumferential recesses in the piston heads while the U-shaped cup bore seals provide a sealing wall between the areas where the fluid is present and the opposite ambient air side. Adjacent the bore seal **42** is formed a circumferential reservoir **52** in the piston sleeve **53** integral with the tubular wall **16**; a circumferential wiper **54** is lodged in reservoir **52**. Located adjacent the bore seal **46** is formed a reservoir **56** in the piston sleeve **57** integral with the tubular wall **18**; a circumferential wiper **58** is lodged in reservoir **56**. Located adjacent the bore seal **50** is formed a reservoir **60** in the piston sleeve **61** integral with the tubular wall **20**; a circumferential wiper **62** is lodged in reservoir **60**.

In operation when the tubular sections **14**, **16** and **18** are telescopically displaced as a result of the introduction of fluid under pressure through the inlet port **28**, the wipers **54**, **58** and **62** scrape the interior wall of the tubular sections **14**, **16** and **18** and any debris or dirt present on these walls is collected in the areas of the reservoirs **52**, **56** and **60** respectively unoccupied by the wipers.

Glands **68**, **64** and **66** are respectively mounted at the opposite ends of the tubular sections **14**, **16** and **18** and serve to contact the piston sleeves **53**, **57** and **61**, respectively to limit the displacement of their respective tubular section. A trunion **74** is mounted to the exterior wall of the housing **12** for securing the hydraulic jack for operation.

The material of the wiper may be of plastics material, such as urethane, teflon or a composite, rubber or a non ferrous metal, such as bronze.

Although the invention has been described in relation to one specific form, it will be evident to a person skilled in the art that it may be varied or modified in any ways. For example, the wipers could be constructed in a manner that they include a reservoir for collecting the debris or dirt. It is therefore wished to have it understood that the present invention should not be limited in interpretation, except by the terms of the following claims.

What is claimed is:

1. A telescopic hoist comprising:
  - a series of telescopically arranged tubular sections, each section having a first end and an opposite end; each said first end having an annular head;
  - sealing means mounted on at least one of said annular heads;
  - reservoir means on at least one of said first ends located circumferentially adjacent said sealing means; said reservoir means defining a scraper receiving section and a debris receiving area disposed adjacent to said scraper receiving section; and
  - scraper means disposed in said scraper receiving section of said reservoir means contacting an adjacent inner wall of an adjacent tubular section whereby debris scraped and collected by said scraper means from said inner wall are deposited in said debris receiving area of said reservoir means.
2. A telescopic hoist comprising:
  - a cylindrical housing;
  - a series of actuatable tubular sections telescopically received in said housing; each said tubular section

3

having a piston end; an inlet/outlet port in some of said first ends for passage of a pressure fluid therethrough; seal means mounted in some of said piston ends separating said fluid from ambient air;

bore means provided in some of said tubular sections on a front side of said piston ends; said bore means defining a scraper receiving section and a debris receiving area adjacent said scraper receiving section; and

scraper means disposed in said scraper receiving section of said bore means contacting an adjacent inner wall of an adjacent tubular sections whereby debris scraped and collected by said scraper means from said inner wall are deposited in said debris receiving area.

3. A telescopic hoist comprising:

a series of telescopically arranged tubular sections, each section having a first end and an opposite end; each said first end having an annular head;

a seal mounted on at least one of said annular heads;

a reservoir on at least one of said first ends located circumferentially adjacent said seal; said reservoir defining a scraper receiving section and a debris receiving area disposed adjacent to said scraper receiving section; and

a scraper disposed in said scraper receiving section of said reservoir contacting an adjacent inner wall of an adja-

4

cent tubular section whereby debris scraped and collected by said scraper from said inner wall are deposited in said debris receiving area of said reservoir.

4. A telescopic hoist comprising:

a cylindrical housing;

a series of actuatable tubular sections telescopically received in said housing; each said tubular section having a piston end; an inlet/outlet port in at least one of said first ends for passage of a pressure fluid therethrough;

a seal mounted on at least one of said piston ends separating said fluid from ambient air;

a bore provided in at least one of said tubular sections on a front side of said piston ends; said bore defining a scraper receiving section and a debris receiving area adjacent said scraper receiving section; and

a scraper disposed in said scraper receiving section of said bore contacting an adjacent inner wall of an adjacent tubular sections whereby debris scraped and collected by said scraper from said inner wall are deposited in said debris receiving area.

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